Table 1 Mean ratio of biogenic silica dissolution (D) to silica production (P) in systems for which vertically integrated data are available

Location	Time	*n*	D:P			Reference(s)
			Low	Mean	High	
Euphotic zone (isotopic methods)						
Coastal ocean (30 stations)						
Northwest Africa upwelling	April–May 1974	7	0.45	1.0	5.8	Nelson & Goering 1977
Peru upwelling	March–April 1976	4		0.1		Nelson et al. 1981
Southern California upwelling	April 1992	2	0.05	0.1	0.16	M.A. Brzezinski, unpublished data
Monterey Bay upwelling	April 2000	8	0.02	0.15	0.67	Brzezinski et al. 2003
Amazon River plume	August 1989	11	0.22	0.65	2.4	DeMaster et al. 1991
Open ocean (25 stations)						
Gulf Stream warm-core rings	April–June 1982	11	<0.19	0.47	0.79	Brzezinski & Nelson 1989
Eastern equatorial Pacific	September 2005	14	–0.53	0.35	1.23	Demarest et al. 2011
Southern Ocean (38 stations)						
Southern Ocean, spring (16 stations)						
Pacific sector	October–November 1978	6	0.18	0.34	0.58	Nelson & Gordon 1982
US Survey Pacific sector I	October–November 1997	3	0.61	0.64	0.69	Brzezinski et al. 2001
US Prod I Pacific sector	December 1997	7	0.01	0.27	0.72	Brzezinski et al. 2001
Southern Ocean, summer (26 stations)						
Ross Sea	January–February 1990	9	0.41	0.61	1.10	Nelson et al. 1991; D.M. Nelson, unpublished data
US Prod II	February–March 1998	6	0.04	0.83	2.71	Brzezinski et al. 2001
Indian sector	February 2003	6	0.00	1.42	3.05	Beucher et al. 2004b
SAZ-Sense Pacific sector	January–February 2007	5	0.02	1.68	2.08	Fripiat et al. 2011b
Surface waters (combination of methods; italics = time series)[a]						
Coastal ocean						
Santa Barbara Basin[b]	January–December 1996	22		0.67		Shipe & Brzezinski 2001
Open ocean						
BATS North Atlantic subtropical gyre[c]	August 1991–December 1994	41		0.82		Nelson & Brzezinski 1997
BATS[c]	April 2007	1	–0.29	8.6	0.47	Krause et al. 2010
Sargasso Sea mesoscale eddy[d]	April 2007	2	–0.41	0.31	+0.81	Krause et al. 2010
HOT North Pacific subtropical gyre[e]	January 2008–December 2009	18		0.46		Brzezinski et al. 2011
North Pacific subtropical gyre[b]	May 2008–December 2009	7	1.94	3.25	5.98	M.A. Brzezinski, personal communication
Eastern equatorial Pacific[d]	December 2004	7	0.37	1.2	2.45	Adjou et al. 2011
Eastern equatorial Pacific	September 2005	14	–0.53	0.35	1.23	Demarest et al. 2011
Southern Ocean						
US JGOFS Pacific sector[f]	December 1997–March 1998	31				Nelson et al. 2002

(*Continued*)

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Location	Time	*n*	D:P			Reference(s)
			Low	Mean	High	
Northern Antarctic Circumpolar Current (55°–59° S, subantarctic zone)		6		0.16		
Polar front (59°–61.5° S, polar frontal zone)		9		0.26		
Southern Antarctic Circumpolar Current (61.5°–65.5° S, seasonal ice zone)		10		0.53		
Ross Sea gyre (65.5°–71.5° S, seasonal ice zone)		6		0.74		

Abbreviations: BATS, Bermuda Atlantic Time-Series Study; HOT, Hawaii Ocean Time-Series; JGOFS, Joint Global Ocean Flux Study; SAZ, subantarctic zone.

[a]"Surface waters" usually means the euphotic zone but can mean the 0–100-m or 0–150-m layer. Measurement of silica dissolution by isotopic dilution is generally not possible for oligotrophic waters; see footnotes b–f regarding the methods used to determine the dissolution rate and D:P ratio.

[b]Production flux: isotopic; export flux (= net production): sediment traps at 470 m; dissolution flux: difference between these two fluxes.

[c]Production flux: isotopic tracer methods; export flux (= net production): sediment traps; dissolution flux: difference between these two fluxes.

[d]Production flux: isotopic; dissolution flux: variation in silica during bottle incubation.

[e]Production flux: isotopic; export flux (= net production): sediment traps at 150 m; dissolution flux: difference between these two fluxes.

[f]Production flux: isotopic method (31 stations, eight depths per station, 100%–0.1% light); export flux (= net production estimated by ^{234}Th deficit and ratio of ^{234}Th particulate to biogenic silica): sediment traps at 100 m (one mooring per zone); dissolution flux: difference between these two fluxes.